WHAT IS CLAIMED:

1 1. A method of surveillance, which method compr	nethod comprises:
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- 2 assaying a sample derived from materials collected from a sample domain for the
- 3 presence of a chemical, biological, or radiological agent,
- 4 wherein the sample domain comprises at least one collection point from which the
- 5 materials are collected in a pre-existing operation, unrelated to surveillance.
- 1 2. The method of surveillance of claim 1, wherein the sample domain comprises a route
- 2 undertaken by a street sweeper machine.
- 1 3. The method of surveillance of claim 2, wherein the materials are collected in a
- 2 predetermined, traceable route.
- 1 4. The method of surveillance of claim 2, wherein the sample is assayed for Bacillus
- 2 anthracis, and Tetrahymena pyriformis is introduced to the sample
- 1 5. The method of surveillance of claim 1, wherein the sample is assayed for Bacillus
- 2 anthracis using real time polymerase chain reaction (RTm-PCR).
- 1 6. The method of surveillance of claim 2, wherein the sample is derived from a street
- 2 sweeper machine.
- 1 7. The method of surveillance of claim 6, comprising obtaining a sample from a collection
- 2 bin, and assaying the sample.
- 1 8. The method of surveillance of claim 7, comprising placing an assaying device in
- 2 communication with the collection bin.
- 1 9. The method of surveillance of claim 7, wherein the sample is derived from rinsing
- 2 collection bins that collect refuse from the street sweeper machine.
- 1 10. The method of surveillance of claim 1, wherein the sample is derived from collection
- 2 bins washed with water.

- 1 11. The method of surveillance of claim 1, wherein the materials are collected in a predetermined pattern, and brought to a central location.
- 1 12. The method of surveillance of claim 1, wherein assaying for the presence of a chemical,
- biological, or radiological agent comprises comparing a level of chemical, biological or
- radiological agent to a normal level of a chemical, biological or radiological agent.
- 1 13. The method of surveillance of claim 12, wherein the normal level of a chemical, 2 biological or radiological agent comprises background noise.
- 1 14. The method of surveillance of claim 12, wherein the normal level of a chemical, 2 biological or radiological agent is ascertained from a second sample domain.
- 1 15. The method of surveillance of claim 1, wherein assaying for the presence of a chemical,
- biological, or radiological agent comprises detecting an increase in a level of chemical,
- 3 biological or radiological agent relative to an earlier assay.
- 1 16. The method of surveillance of claim 1, wherein assaying for the presence of a chemical,
- biological, or radiological agent comprises detecting a decrease in a level of chemical,
- 3 biological or radiological agent relative to an earlier assay.
- 1 , 17. The method of surveillance of claim 1, wherein assaying for the presence of a chemical,
- biological, or radiological agent comprises introducing Tetrahymena pyriformis to the
- 3 sample.
- 1 18. The method of surveillance of claim 17, wherein the sample is assayed for Bacillus
- 2 anthracis.

- 1 19. The method of surveillance of claim 17, wherein the sample is assayed for *Bacillus* thuringiensis.
- 1 20. The method of surveillance of claim 1, wherein the sample is assayed for *Bacillus*
- 2 thuringiensis.
- 1 21. The method of surveillance of claim 20, wherein the *Bacillus thuringiensis* is UV-
- 2 resistant.

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- 1 22. The method of surveillance of claim 1, wherein collection integrity is preserved.
- 1 23. The method of surveillance of claim 1, comprising obtaining and assaying a sample from within a collection bin.
- 1 24. The method of claim 23, comprising placing an assaying device in communication with the collection bin.
- A method of surveillance, which method comprises: isolating a sample, which sample comprises debris or fluids that result from rinsing an instrumentality used in a collection of materials from a sample domain, and assaying the sample for the presence of a
- 1 26. A method of surveillance, which method comprises:

chemical, biological, or radiological agent.

- 2 (a) isolating a sample from a sample domain, which sample comprises debris or fluids
- 3 that result from rinsing an instrumentality used in the collection of materials from the
- 4 sample domain, and wherein the sample domain comprises a collection of materials on a
- 5 regular, systematic basis through a predetermined, traceable route, the predetermined
- 6 traceable rout converging on a centralized location;
- 7 (b) assaying the sample for the presence of a chemical, biological, or radiological agent
- 8 using PCR technology, radiation detector technology, spectrometry technology, or
- 9 radioimmunoassay technology;
- 10 (c) determining a result based on the assay; and

- 11 (d) reporting the result.
- 1 27. The method of surveillance of claim 26, wherein collection integrity is preserved.
- 1 28. A system for surveillance for chemical, biological, or radiological agents, which method
- 2 comprises:
- a sampling means for obtaining samples from collection points from which the materials
- are collected in a pre-existing operation, unrelated to surveillance; and
- 5 an assaying means, for determining the presence of a chemical, biological, or
- 6 radiological agent in the sample from the sample domain.
- 1 29. A method for determining the presence of a Bacillus spore within a sample comprising
- 2 introducing *Tetrahymena pyriformis* to the sample, and assaying the sample for the presence
- 3 of a *Bacillus* spore.
- 1 30. The method for determining the presence of a Bacillus spore of claim 29, wherein the
- 2 Bacillus spore is Bacillus anthracis.
- 1 31. The method for determining the presence of a Bacillus spore of claim 29, wherein the
- 2 Bacillus spore is Bacillus thuringiensis.
- 1 32. The method for determining the presence of a *Bacillus* spore of claim 29, further comprising
- 2 the step of introducing the sample to a membrane at a temperature effective to kill vegetative
- 3 bacteria.
- 1 33. The method for determining the presence of a Bacillus spore of claim 32, wherein the
- temperature effective to kill the vegetative bacteria is about 70 °C to about 80 °C.
- 1 34. The method for determining the presence of a Bacillus spore of claim 29, wherein the
- sample is introduced to a first membrane having a pore size larger than the *Bacillus* spore,
- and a second membrane having a pore size smaller than the *Bacillus* spore.

- 1 35. The method for determining the presence of a Bacillus spore of claim 34, wherein the first
- 2 membrane and/or the second membrane is at a temperature effective to kill vegetative
- 3 bacteria.
- 1 36. The method for determining the presence of a Bacillus spore of claim 35, wherein the
- temperature effective to kill the vegetative bacteria is about 70 °C to about 80 °C.